AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A production method of a mammalian artificial chromosome, comprising:

a first step of introducing into a mammalian host cell a first vector being circular in form and comprising a mammalian centromere sequence, wherein the mammalian centromere sequence comprises a 11mer repeat unit obtained from a human chromosome 21, and introducing a second vector into ~~a~~ the host cell being circular in form and comprising an insertion sequence, so that recombination of the first and second vectors is carried out, and wherein the insertion sequence in the second vector is a loxP site, a FRT site, or a sequence obtained by partial modification of a loxP site or a FRT site and has a function for inserting the sequence of interest and an insulator sequence, wherein the first vector or the second vector comprises a selection marker gene and wherein the insulator sequence is selected from the group consisting of: human beta-globin HS1 to 5, chicken beta globin HS4, Drosophila gypsy retrotransposon, sea urchin 5' flanking region of arylsulfatase, blocking element α/; of human T cell receptor α/δ, and repeat organizer of Xenopus 40S ribosomal RNA gene;

a second step of selecting transformed cells, wherein the selection of the transformed cells is carried out by using the selection marker gene of the first vector or the second vector; and

a third step of selecting a cell containing a mammalian artificial chromosome from the selected transformed cells, thereby producing a mammalian artificial chromosome.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) The production method according to claim 1, wherein the mammalian centromere sequence comprises a region in which a plurality of the following sequences are arranged at regular intervals: 5'-NTTCGNNNNANNCGGGN-3': SEQ ID NO. 1, wherein N is selected from the group consisting of A, T, C and G.

5. (Cancelled)

6. (Cancelled)

7. (Previously Presented) The production method according to claim 1, wherein the size of the mammalian centromere sequence is about 50 kb or less.

8. – 13. (Cancelled)

14. (Previously Presented) The production method according to claim 1, wherein the quantity ratio of the first vector to the second vector, which are inserted in the first step, is in the range from about 10:1 molecular ratio to about 1:10 molecular ratio.

15. -56. (Canceled)

57 (New). The production method according to claim 1, wherein the mammalian centromere sequence comprises a region in which a plurality of the following sequences are arranged at regular intervals: 5'-NTTCGTTGGAAACGGGA-3': SEQ ID NO. 2, wherein N is selected from the group consisting of A, T, C and G.

58 (New). The production method according to claim 1, wherein the mammalian centromere sequence comprises a sequence of SEQ ID NO. 3.